

**FILED WITH  
Executive Secretary  
December 31, 2014  
IOWA UTILITIES BOARD  
EEP-2009-0002**

December 31, 2014

Judi Cooper  
Iowa Utilities Board  
350 Maple Street  
Des Moines IA 50319-0069

Subject: Energy Efficiency Filing Pursuant to SF 2386

Dear Ms. Cooper

Maquoketa Valley Electric Cooperative is submitting this filing according to Senate File 2386 passed in 2008 to demonstrate energy efficiency goals for electric utilities not subject to rate regulation.

This filing includes an executive summary of our cooperative and our energy efficiency participation goals, costs and projected energy savings for the five year period of 2015-2019. Our power supplier, Central Iowa Power Cooperative, hired a third party vendor to determine the cost-effectiveness, including societal, cost, consumer impact and participant tests of each proposed measure.

If you have any questions regarding this report, please contact me at 319-462-3542.

Sincerely,

Patty Manuel  
Director of Communications  
[pmanuel@mvec.coop](mailto:pmanuel@mvec.coop)

December 31, 2014

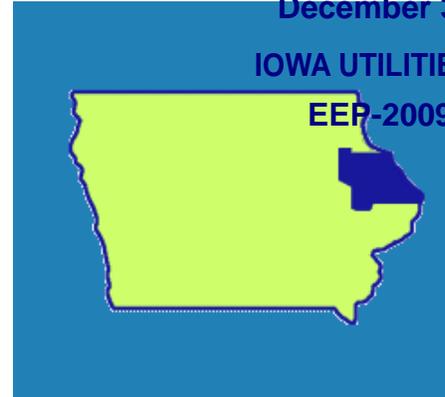
IOWA UTILITIES BOARD

EEP-2009-0002



# Maquoketa Valley Electric Cooperative

® Your Touchstone Energy® Cooperative 



## Who We Are

Maquoketa Valley Electric Cooperative (MVEC) is a not-for-profit, member-owned utility that provides electric service and other services to 17,000 homes, farms and businesses in east-central Iowa. Electric service extends from Dubuque, south along the Mississippi River to Sabula, east to Anamosa and north to Manchester and Strawberry Point. Membership is spread through Delaware, Dubuque, Jackson and Jones counties and portions of five adjoining counties.

The Cooperative's headquarters is located in Anamosa, in the southwest corner of the assigned service area. The Cooperative maintains five outposts where two or more linemen are stationed to maintain high service reliability levels. The Cooperative is governed by a nine-member board of directors elected by and from the members served by the cooperative. MVEC employs 61 people.

In addition to electricity distribution, MVEC actively promotes and encourages energy efficiency and renewable energy to its membership as well as the general public. Other services include, economic development assistance and financing, renewable energy education, energy efficiency education and electrical safety education in the communities we serve. We are also actively involved in our communities through support of area schools, organizations and events.

As a not-for-profit utility organized, owned, and governed by its members, MVEC allocates profits (margin allocations) that result after expenses are tabulated and audited at the end of each year. These margin allocations (also called patronage dividends) are held for up to 15 years by the Cooperative to serve as resources for reinvestment in the distribution system.

## Cooperative 2014 Statistics

- Number of connected accounts: 15,675
- Number of miles energized line: 3,240
- Members per mile of line: 4.84
- Counties served: Delaware, Dubuque, Jackson, Jones and portions of Buchanan, Cedar, Clayton, Clinton and Linn counties
- Revenue: \$28,377,455

MVEC's service area is highly residential, or residential with a farm operation at approximately 85% of accounts. Commercial and industrial accounts make up 10% of connected accounts with only 2 members over 1,000 KVA.

## **Cooperative Practices**

In 2008, MVEC converted its entire system to automated metering infrastructure (AMI) as an additional means of providing value to its membership. This technology has paid off for both the Cooperative and our membership. Members are now experiencing more consistent bills with 30 days in the billing versus a fluctuation when meters were self (member)-read. The Cooperative receives fewer high bill complaints and AMI software allows graphing of member energy usage over given time periods and greatly assists Cooperative staff in helping members understand ways they can reduce their energy use. The data collected thru metering has provided additional information to help us better manage our infrastructure, including enhanced outage management and improved line losses.

MVEC practices what they preach with regard to efficiencies. The cooperative has replaced a boiler system with more efficient air source heat pumps in all areas of the office. A large office area was recently remodeled and included replacement of fiberglass insulation with spray foam insulation, a new roof and improved insulation and energy efficient windows to allow increased natural lighting. Electric wiring was enhanced and improved throughout the building. A large warehouse/truck bay received a new roof with improved insulation and the ceiling was finished in a lighter color and energy efficient lighting was added.

In the fall of 2013 the Cooperative designed and installed a 14.58 KV solar array on the roof of the warehouse, and are seeing an 8% reduction in annual utility costs as a result.

MVEC is environmentally conscious as well. Recycling bins are utilized for paper, newspaper, cardboard and plastic waste. Community donations include paper cups versus styrofoam. The breakroom/kitchen area is equipped with washable plates and utensils to discourage use of paper products. Lighting is turned off in rooms that are not in use and employees are encouraged to turn off computers and other electronics at night.

## **Member Energy Efficiency Utilization**

MVEC's residential, ag and commercial members regularly use the energy efficiency incentives offered. Lighting, geothermal and appliance recycling are especially popular. In past years, MVEC offered a successful water heater replacement program to encourage greater efficiency by replacing units more than 10 years old. With its success a few years old, the Cooperative is now exploring a heat pump water heater program for even greater efficiency. We have teamed up with AmeriCorps to audit and weatherize the homes of LIHEAP members and are once again exploring a relationship with AmeriCorps for home energy audits and the heat pump water heater installations.

## **Energy Efficiency and Renewable Energy Education**

MVEC has a BPI certified auditor on staff and we provide free energy audits that include blower door testing and infrared camera inspections where requested. Combined with in-home visits, the AMI software has proven a successful tool in helping members learn where their energy is used and how to prioritize home improvements.

Energy efficiency is also promoted at K-12 school presentations as invited by area schools. Schools are also encouraged to bring students to the Cooperative's headquarters for presentations on the Cooperative's renewable energy program as well as general electricity and energy efficiency information.

The Cooperative's monthly newsletter, *Watts Current*, is mailed monthly to all members and always includes energy efficiency tips under our "**Make Very Efficient Choices**" tagline. Energy efficiency articles are a regular part of each newsletter. MVEC also promotes of an e-newsletter, *Watts Smart*, where members can pick up additional energy-saving pointers. The Cooperative's website, [www.mvec.coop](http://www.mvec.coop) continues to be a popular site for downloading incentive applications and linking to a variety of energy efficiency resources. The Cooperative is a Touchstone Energy Cooperative and is part of the nationwide marketing campaign, "Together We Save" where the general public can login and learn where their home's energy is being used and the savings they can experience with efficiency improvements. Visit [www.togetherwesave](http://www.togetherwesave) to see this educational tool.

The Cooperative's headquarter display featuring a 2 KW residential wind turbine and 2 KW photo voltaic system continues to be promoted on the website and through high school class education. The display is connected to a weather station and results are posted live at [www.mvec.coop](http://www.mvec.coop) whereby the public can understand the actual power generated in relation to the weather for any given time period.

Maquoketa Valley Electric Cooperative

| Category  | Measure   | Coop Added Incentive (Avg/part.) | Partic. Definition     | Projected Participants        |        |        |        |         | Total Incentives        |           |           |           |           | Total Admin Costs        |          |          |          |          | Total Program Costs        |           |           |           |           | Projected kWh Savings    |           |           |           |           |
|---|---|----------------------------------|------------------------|-------------------------------|--------|--------|--------|---------|-------------------------|-----------|-----------|-----------|-----------|--------------------------|----------|----------|----------|----------|----------------------------|-----------|-----------|-----------|-----------|--------------------------|-----------|-----------|-----------|-----------|
|   |   |                                  |                        | 2015                          | 2016   | 2017   | 2018   | 2019    | 2015                    | 2016      | 2017      | 2018      | 2019      | 2015                     | 2016     | 2017     | 2018     | 2019     | 2015                       | 2016      | 2017      | 2018      | 2019      | 2015                     | 2016      | 2017      | 2018      | 2019      |
| <b>Residential Component</b>  |   |                                  |                        |                               |        |        |        |         |                         |           |           |           |           |                          |          |          |          |          |                            |           |           |           |           |                          |           |           |           |           |
| Electric Heat Rate Incentive  | Heat Plus Rate  | \$0                              | Per Home               | 66                            | 66     | 66     | 66     | 66      | \$6,600                 | \$6,600   | \$6,600   | \$6,600   | \$6,600   | \$1,449                  | \$1,449  | \$1,449  | \$1,449  | \$1,449  | \$8,049                    | \$8,049   | \$8,049   | \$8,049   | \$8,049   | 0                        | 0         | 0         | 0         | 0         |
| Air-Source Heat Pumps   | Air Source Heat Pump  | \$0                              | Per Unit               | 59                            | 59     | 59     | 59     | 59      | \$23,010                | \$23,010  | \$23,010  | \$23,010  | \$23,010  | \$5,050                  | \$5,050  | \$5,050  | \$5,050  | \$5,050  | \$28,060                   | \$28,060  | \$28,060  | \$28,060  | \$28,060  | 30,926                   | 30,926    | 30,926    | 30,926    | 30,926    |
|   | Air-Source Heat Pump ENERGY STAR Bonus                                    | \$0                              | Per Unit               | 32                            | 32     | 32     | 32     | 32      | \$11,200                | \$11,200  | \$11,200  | \$11,200  | \$11,200  | \$2,458                  | \$2,458  | \$2,458  | \$2,458  | \$2,458  | \$13,658                   | \$13,658  | \$13,658  | \$13,658  | \$13,658  | 0                        | 0         | 0         | 0         | 0         |
| Geothermal Heat Pumps   | Geothermal Closed Loop  | \$0                              | Per Unit               | 73                            | 75     | 75     | 76     | 78      | \$109,865               | \$112,875 | \$112,875 | \$114,380 | \$117,390 | \$24,112                 | \$24,773 | \$24,773 | \$25,103 | \$25,764 | \$133,977                  | \$137,648 | \$137,648 | \$139,483 | \$143,154 | 462,987                  | 475,672   | 475,672   | 482,014   | 494,698   |
|   | Geothermal Open Loop  | \$0                              | Per Unit               | 0                             | 0      | 0      | 0      | 0       | \$0                     | \$0       | \$0       | \$0       | \$0       | \$0                      | \$0      | \$0      | \$0      | \$0      | \$0                        | \$0       | \$0       | \$0       | 0         | 0                        | 0         | 0         | 0         |           |
|   | Geothermal Heat Pump Replacement  | \$0                              | Per Unit               | 16                            | 16     | 16     | 16     | 16      | \$4,000                 | \$4,000   | \$4,000   | \$4,000   | \$4,000   | \$878                    | \$878    | \$878    | \$878    | \$878    | \$4,878                    | \$4,878   | \$4,878   | \$4,878   | \$4,878   | 101,477                  | 101,477   | 101,477   | 101,477   | 101,477   |
| Contractor Incentive  | Contractor Heat Pimp Incentive  | \$0                              | Per Home               | 62                            | 62     | 62     | 62     | 62      | \$12,400                | \$12,400  | \$12,400  | \$12,400  | \$12,400  | \$2,721                  | \$2,721  | \$2,721  | \$2,721  | \$2,721  | \$15,121                   | \$15,121  | \$15,121  | \$15,121  | \$15,121  | 0                        | 0         | 0         | 0         | 0         |
| Heat Recovery Ventilator  | Heat Recovery Ventilator  | \$0                              | Per Unit               | 29                            | 29     | 29     | 30     | 30      | \$7,250                 | \$7,250   | \$7,250   | \$7,500   | \$7,500   | \$1,591                  | \$1,591  | \$1,591  | \$1,646  | \$1,646  | \$8,841                    | \$8,841   | \$8,841   | \$9,146   | \$9,146   | 41,416                   | 41,416    | 41,416    | 42,844    | 42,844    |
| ENERGY STAR Air Conditioners  | ENERGY STAR Air Conditioner Split System                                  | \$0                              | Per Unit               | 41                            | 42     | 42     | 43     | 43      | \$3,075                 | \$3,150   | \$3,150   | \$3,225   | \$3,225   | \$675                    | \$691    | \$691    | \$708    | \$708    | \$3,750                    | \$3,841   | \$3,841   | \$3,933   | \$3,933   | 7,369                    | 7,549     | 7,549     | 7,729     | 7,729     |
|   | Ultra Efficient Air Conditioner Split System                              | \$0                              | Per Unit               | 57                            | 58     | 58     | 59     | 59      | \$4,275                 | \$4,350   | \$4,350   | \$4,425   | \$4,425   | \$938                    | \$955    | \$955    | \$971    | \$971    | \$5,213                    | \$5,305   | \$5,305   | \$5,396   | \$5,396   | 25,996                   | 26,452    | 26,452    | 26,909    | 26,909    |
|   | ECM Fan   | \$0                              | Per Unit               | 15                            | 15     | 15     | 15     | 15      | \$750                   | \$750     | \$750     | \$750     | \$750     | \$165                    | \$165    | \$165    | \$165    | \$165    | \$915                      | \$915     | \$915     | \$915     | \$915     | 7,620                    | 7,620     | 7,620     | 7,620     | 7,620     |
| All Star Home   | All-Star Home   | \$0                              | Per Home               | 3                             | 3      | 3      | 4      | 4       | \$1,500                 | \$1,500   | \$1,500   | \$2,000   | \$2,000   | \$329                    | \$329    | \$329    | \$439    | \$439    | \$1,829                    | \$1,829   | \$1,829   | \$2,439   | \$2,439   | 3,785                    | 3,785     | 3,785     | 5,047     | 5,047     |
| ENERGY STAR Appliances  | Clothes Washer w/ Both Elect. Dryer and WH                                | \$0                              | Per Unit               | 143                           | 143    | 143    | 143    | 143     | \$8,580                 | \$8,580   | \$8,580   | \$8,580   | \$8,580   | \$1,883                  | \$1,883  | \$1,883  | \$1,883  | \$1,883  | \$10,463                   | \$10,463  | \$10,463  | \$10,463  | \$10,463  | 46,486                   | 46,486    | 46,486    | 46,486    | 46,486    |
|   | Clothes Washer w/Electric Water Heater Only                               | \$0                              | Per Unit               | 8                             | 8      | 8      | 8      | 8       | \$240                   | \$240     | \$240     | \$240     | \$240     | \$53                     | \$53     | \$53     | \$53     | \$53     | \$293                      | \$293     | \$293     | \$293     | \$293     | 1,185                    | 1,185     | 1,185     | 1,185     | 1,185     |
| Appliance Recycling   | Refrigerator  | \$0                              | Per Unit               | 185                           | 185    | 195    | 195    | 205     | \$19,055                | \$19,055  | \$20,085  | \$20,085  | \$21,115  | \$4,182                  | \$4,182  | \$4,408  | \$4,408  | \$4,634  | \$23,237                   | \$23,237  | \$24,493  | \$24,493  | \$25,749  | 228,405                  | 228,405   | 240,751   | 240,751   | 253,097   |
|   | Freezer   | \$0                              | Per Unit               | 80                            | 80     | 80     | 80     | 80      | \$7,440                 | \$7,440   | \$7,440   | \$7,440   | \$7,440   | \$1,633                  | \$1,633  | \$1,633  | \$1,633  | \$1,633  | \$9,073                    | \$9,073   | \$9,073   | \$9,073   | \$9,073   | 79,362                   | 79,362    | 79,362    | 79,362    | 79,362    |
|   | Window AC   | \$0                              | Per Unit               | 70                            | 70     | 80     | 80     | 90      | \$6,510                 | \$6,510   | \$7,440   | \$7,440   | \$8,370   | \$1,429                  | \$1,429  | \$1,633  | \$1,633  | \$1,837  | \$7,939                    | \$7,939   | \$9,073   | \$9,073   | \$10,207  | 28,720                   | 28,720    | 32,823    | 32,823    | 36,926    |
| Water Heaters   | Heat Pump Water Heater  | \$0                              | Per Home               | 15                            | 10     | 10     | 10     | 10      | \$9,750                 | \$6,500   | \$6,500   | \$6,500   | \$6,500   | \$2,140                  | \$1,427  | \$1,427  | \$1,427  | \$1,427  | \$11,890                   | \$7,927   | \$7,927   | \$7,927   | \$7,927   | 29,960                   | 19,973    | 19,973    | 19,973    | 19,973    |
|   | Solar Water Heater with Electric Auxiliary Tank                           | \$0                              | Per Home               | 0                             | 0      | 0      | 0      | 0       | \$0                     | \$0       | \$0       | \$0       | \$0       | \$0                      | \$0      | \$0      | \$0      | \$0      | \$0                        | \$0       | \$0       | \$0       | 0         | 0                        | 0         | 0         | 0         |           |
|   | Electric Resistance Water Heater (50-55 Gal. Tank)                        | \$0                              | Per Home               | 125                           | 115    | 100    | 90     | 80      | \$6,250                 | \$5,750   | \$5,000   | \$4,500   | \$4,000   | \$1,372                  | \$1,262  | \$1,097  | \$988    | \$878    | \$7,622                    | \$7,012   | \$6,097   | \$5,488   | \$4,878   | 0                        | 0         | 0         | 0         | 0         |
|   | Electric Resistance Water Heater (50-55 Gal. Tank) w/ Hot Water Saver Kit | \$0                              | Per Home               | 63                            | 58     | 54     | 50     | 47      | \$1,575                 | \$1,450   | \$1,350   | \$1,250   | \$1,175   | \$346                    | \$318    | \$296    | \$274    | \$258    | \$1,921                    | \$1,768   | \$1,646   | \$1,524   | \$1,433   | 24,694                   | 22,735    | 21,167    | 19,599    | 18,423    |
|   | Hot Water Saver Kit   | \$0                              | Per Home               | 70                            | 70     | 70     | 70     | 70      | \$2,100                 | \$2,100   | \$2,100   | \$2,100   | \$2,100   | \$461                    | \$461    | \$461    | \$461    | \$461    | \$2,561                    | \$2,561   | \$2,561   | \$2,561   | \$2,561   | 0                        | 0         | 0         | 0         | 0         |
| Water Heater 50-55 Gal. Tank - Geothermal Assisted Electric (Dsprhtr) | \$0   | Per Unit                         | 66                     | 66                            | 66     | 66     | 66     | \$9,900 | \$9,900                 | \$9,900   | \$9,900   | \$9,900   | \$2,173   | \$2,173                  | \$2,173  | \$2,173  | \$2,173  | \$12,073 | \$12,073                   | \$12,073  | \$12,073  | \$12,073  | 49,962    | 49,962                   | 49,962    | 49,962    | 49,962    |           |
| Drain Water Heat Recovery System                                      | Heat Recovery Pipe System   | \$0                              | Per Home               | 0                             | 0      | 0      | 0      | 0       | \$0                     | \$0       | \$0       | \$0       | \$0       | \$0                      | \$0      | \$0      | \$0      | \$0      | \$0                        | \$0       | \$0       | \$0       | 0         | 0                        | 0         | 0         | 0         |           |
| Interior Lighting   | CFL Fixture (hard-wired)  | \$0                              | Per Fixture            | 7                             | 7      | 7      | 7      | 7       | \$105                   | \$105     | \$105     | \$105     | \$105     | \$23                     | \$23     | \$23     | \$23     | \$23     | \$128                      | \$128     | \$128     | \$128     | \$128     | 494                      | 494       | 494       | 494       | 494       |
|   | LED Fixture   | \$0                              | Per Fixture            | 180                           | 180    | 180    | 180    | 180     | \$2,700                 | \$2,700   | \$2,700   | \$2,700   | \$2,700   | \$593                    | \$593    | \$593    | \$593    | \$593    | \$3,293                    | \$3,293   | \$3,293   | \$3,293   | \$3,293   | 11,610                   | 11,610    | 11,610    | 11,610    | 11,610    |
|   | T8 Fluorescent Fixture with Electronic Ballasts                           | \$0                              | Per Fixture            | 145                           | 145    | 145    | 145    | 145     | \$2,175                 | \$2,175   | \$2,175   | \$2,175   | \$2,175   | \$477                    | \$477    | \$477    | \$477    | \$477    | \$2,652                    | \$2,652   | \$2,652   | \$2,652   | \$2,652   | 8,672                    | 8,672     | 8,672     | 8,672     | 8,672     |
|   | BE Bright: Residential  | \$0                              | Per Lamp               | 32,768                        | 32,842 | 32,920 | 33,002 | 33,088  | \$65,536                | \$65,684  | \$65,840  | \$66,004  | \$66,176  | \$14,383                 | \$14,416 | \$14,450 | \$14,486 | \$14,524 | \$79,919                   | \$80,100  | \$80,290  | \$80,490  | \$80,700  | 1,148,440                | 1,151,033 | 1,153,767 | 1,156,641 | 1,159,655 |
| Outdoor Lighting  | Custom LED Fixture  | \$0                              | Per Fixture            | 5                             | 6      | 7      | 8      | 9       | \$215                   | \$258     | \$301     | \$344     | \$387     | \$47                     | \$57     | \$66     | \$75     | \$85     | \$262                      | \$315     | \$367     | \$419     | \$472     | 5,720                    | 6,864     | 8,008     | 9,152     | 10,296    |
|   | LED or Induction Fixture  | \$0                              | Per Fixture            | 70                            | 77     | 84     | 93     | 102     | \$1,428                 | \$1,571   | \$1,714   | \$1,897   | \$2,081   | \$313                    | \$345    | \$376    | \$416    | \$457    | \$1,741                    | \$1,916   | \$2,090   | \$2,314   | \$2,537   | 23,575                   | 25,933    | 28,290    | 31,322    | 34,353    |
|   | High Pressure Sodium Fixture  | \$0                              | Per Fixture            | 2                             | 2      | 2      | 2      | 2       | \$20                    | \$20      | \$20      | \$20      | \$20      | \$4                      | \$4      | \$4      | \$4      | \$4      | \$24                       | \$24      | \$24      | \$24      | \$24      | 360                      | 360       | 360       | 360       | 360       |
|   | ENERGY STAR CFL Fixture   | \$0                              | Per Fixture            | 2                             | 2      | 2      | 2      | 2       | \$30                    | \$30      | \$30      | \$30      | \$30      | \$7                      | \$7      | \$7      | \$7      | \$7      | \$37                       | \$37      | \$37      | \$37      | \$37      | 413                      | 413       | 413       | 413       | 413       |
| Weatherization  | Attic/Ceiling Insulation  | \$0                              | Per Home               | 24                            | 25     | 25     | 26     | 27      | \$5,664                 | \$5,900   | \$5,900   | \$6,136   | \$6,372   | \$1,243                  | \$1,295  | \$1,295  | \$1,347  | \$1,398  | \$6,907                    | \$7,195   | \$7,195   | \$7,483   | \$7,770   | 7,694                    | 8,015     | 8,015     | 8,336     | 8,656     |
|   | Wall Insulation   | \$0                              | Per Home               | 11                            | 11     | 12     | 12     | 12      | \$2,200                 | \$2,200   | \$2,400   | \$2,400   | \$2,400   | \$483                    | \$483    | \$527    | \$527    | \$527    | \$2,683                    | \$2,683   | \$2,927   | \$2,927   | \$2,927   | 13,767                   | 13,767    | 15,019    | 15,019    | 15,019    |
|   | Foundation Insulation   | \$0                              | Per Home               | 4                             | 4      | 4      | 4      | 4       | \$2,400                 | \$2,400   | \$2,400   | \$2,400   | \$2,400   | \$527                    | \$527    | \$527    | \$527    | \$527    | \$2,927                    | \$2,927   | \$2,927   | \$2,927   | \$2,927   | 1,261                    | 1,261     | 1,261     | 1,261     | 1,261     |
|   | Infiltration Control  | \$0                              | Per Home               | 1                             | 1      | 1      | 2      | 2       | \$200                   | \$200     | \$200     | \$400     | \$400     | \$44                     | \$44     | \$44     | \$88     | \$88     | \$244                      | \$244     | \$244     | \$488     | \$488     | 389                      | 389       | 389       | 778       | 778       |
|   | Duct Insulation and Sealing   | \$0                              | Per Home               | 0                             | 0      | 0      | 0      | 0       | \$0                     | \$0       | \$0       | \$0       | \$0       | \$0                      | \$0      | \$0      | \$0      | \$0      | \$0                        | \$0       | \$0       | \$0       | 0         | 0                        | 0         | 0         | 0         |           |
| Direct Delivery Kit   | Kits: Faucet Aerators, Pipe Insulation, Showerheads                       | \$0                              | Per Home               | 3                             | 4      | 4      | 4      | 4       | \$117                   | \$156     | \$156     | \$156     | \$156     | \$26                     | \$34     | \$34     | \$34     | \$34     | \$143                      | \$190     | \$190     | \$190     | \$190     | 1,401                    | 1,868     | 1,868     | 1,868     | 1,868     |
|   | CFL Handout   | \$0                              | Per Unit               | 0                             | 0      | 0      | 0      | 0       | \$0                     | \$0       | \$0       | \$0       | \$0       | \$0                      | \$0      | \$0      | \$0      | \$0      | \$0                        | \$0       | \$0       | \$0       | 0         | 0                        | 0         | 0         | 0         |           |
| <b>AG Component Category</b>  | <b>Measure</b>  | <b>Coop/Muni Incentive</b>       | <b>Unit Definition</b> | <b>Projected Participants</b> |        |        |        |         | <b>Total Incentives</b> |           |           |           |           | <b>Total Admin Costs</b> |          |          |          |          | <b>Total Program Costs</b> |           |           |           |           | <b>Projected Savings</b> |           |           |           |           |
|   |   |                                  |                        | 2015                          | 2016   | 2017   | 2018   | 2019    | 2015                    | 2016      | 2017      | 2018      | 2019      | 2015                     | 2016     | 2017     | 2018     | 2019     | 2015                       | 2016      | 2017      | 2018      | 2019      | 2015                     | 2016      | 2017      | 2018      | 2019      |
| Dairy Operations  | Dairy Milk Pre-Cooler   | \$0                              | Per Cow                | 475                           | 475    | 450    | 450    | 400     | \$1,900                 | \$1,900   | \$1,800   | \$1,800   | \$1,600   | \$417                    | \$417    | \$395    | \$395    | \$351    | \$2,317                    | \$2,317   | \$2,195   | \$2,195   | \$1,951   | 37,020                   | 37,020    | 35,072    | 35,072    | 31,175    |
|   | Dairy Refrigerant Heat Reclaimer  | \$0                              | Per Cow                | 215                           | 215    | 200    | 200    | 150     | \$1,075                 | \$1,075   | \$1,000   | \$1,000   | \$750     | \$236                    | \$236    | \$219    | \$219    | \$165    | \$1,311                    | \$1,311   | \$1,219   | \$1,219   | \$915     | 35,546                   | 35,546    | 33,066    | 33,066    | 24,800    |
|   | Scroll Compressor (replacing reciprocating compressor only)               | \$0                              | Per Unit               | 1                             | 2      | 2      |        |         |                         |           |           |           |           |                          |          |          |          |          |                            |           |           |           |           |                          |           |           |           |           |

| Commercial Component Category | Measure   | Coop/Muni Incentive | Unit Definition | Projected Participants |       |       |       |       | Total Incentives |          |          |          |          | Total Admin Costs |         |         |         |         | Total Program Costs |          |          |          |          | Projected Savings |         |         |         |         |
|-------------------------------|---|---------------------|-----------------|------------------------|-------|-------|-------|-------|------------------|----------|----------|----------|----------|-------------------|---------|---------|---------|---------|---------------------|----------|----------|----------|----------|-------------------|---------|---------|---------|---------|
|                               |   |                     |                 | 2015                   | 2016  | 2017  | 2018  | 2019  | 2015             | 2016     | 2017     | 2018     | 2019     | 2015              | 2016    | 2017    | 2018    | 2019    | 2015                | 2016     | 2017     | 2018     | 2019     | 2015              | 2016    | 2017    | 2018    | 2019    |
| Adjustable Speed Drive        | Adjustable Speed Drive                                    | \$0                 | Per HP          | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
| Air Conditioning Systems      | Split System (3-phase, < 65,000 Btuh)                     | \$0                 | Per Ton         | 1                      | 1     | 1     | 1     | 1     | \$25             | \$25     | \$25     | \$25     | \$25     | \$5               | \$5     | \$5     | \$5     | \$5     | \$30                | \$30     | \$30     | \$30     | \$30     | 82                | 82      | 82      | 82      | 82      |
|                               | Single Package (3-phase, < 65,000 Btuh)                   | \$0                 | Per Ton         | 1                      | 1     | 1     | 1     | 1     | \$25             | \$25     | \$25     | \$25     | \$25     | \$5               | \$5     | \$5     | \$5     | \$5     | \$30                | \$30     | \$30     | \$30     | \$30     | 56                | 56      | 56      | 56      | 56      |
|                               | Chiller: Air Cooled                                       | \$0                 | Per Ton         | 1                      | 1     | 1     | 1     | 1     | \$20             | \$20     | \$20     | \$20     | \$20     | \$4               | \$4     | \$4     | \$4     | \$4     | \$24                | \$24     | \$24     | \$24     | \$24     | 52                | 52      | 52      | 52      | 52      |
|                               | Chiller: Water Cooled                                     | \$0                 | Per Ton         | 1                      | 1     | 1     | 1     | 1     | \$30             | \$30     | \$30     | \$30     | \$30     | \$7               | \$7     | \$7     | \$7     | \$7     | \$37                | \$37     | \$37     | \$37     | \$37     | 35                | 35      | 35      | 35      | 35      |
|                               | Chiller Pipe Insulation                                   | \$0                 | Per Lin. Foot   | 0                      | 0     | 0     | 250   | 250   | \$0              | \$0      | \$0      | \$500    | \$500    | \$0               | \$0     | \$0     | \$110   | \$110   | \$0                 | \$0      | \$0      | \$610    | \$610    | 0                 | 0       | 0       | 1,261   | 1,261   |
|                               | ECM Fan   | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
| Interior Lighting             | Custom Lighting   | \$0                 | Per Account     | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR CFL Fixture (hard-wired)                      | \$0                 | Per Fixture     | 5                      | 5     | 5     | 5     | 5     | \$75             | \$75     | \$75     | \$75     | \$75     | \$16              | \$16    | \$16    | \$16    | \$16    | \$91                | \$91     | \$91     | \$91     | \$91     | 1,221             | 1,221   | 1,221   | 1,221   | 1,221   |
|                               | LED Fixture   | \$0                 | Per Fixture     | 65                     | 74    | 86    | 98    | 113   | \$975            | \$1,110  | \$1,290  | \$1,470  | \$1,695  | \$214             | \$244   | \$283   | \$323   | \$372   | \$1,189             | \$1,354  | \$1,573  | \$1,793  | \$2,067  | 1,899             | 2,162   | 2,512   | 2,863   | 3,301   |
|                               | Hi-Bay Fluorescent  | \$0                 | Per Fixture     | 240                    | 241   | 242   | 243   | 244   | \$18,136         | \$18,212 | \$18,287 | \$18,363 | \$18,438 | \$3,980           | \$3,997 | \$4,014 | \$4,030 | \$4,047 | \$22,117            | \$22,209 | \$22,301 | \$22,393 | \$22,485 | 187,401           | 188,182 | 188,963 | 189,744 | 190,525 |
|                               | High Performance T8 Fixture                               | \$0                 | Per Lamp        | 186                    | 187   | 189   | 190   | 191   | \$1,547          | \$1,555  | \$1,571  | \$1,580  | \$1,588  | \$339             | \$341   | \$345   | \$347   | \$349   | \$1,886             | \$1,896  | \$1,916  | \$1,927  | \$1,937  | 22,193            | 22,312  | 22,551  | 22,670  | 22,789  |
|                               | Pulse Start Metal Halide Fixture                          | \$0                 | Per Fixture     | 5                      | 5     | 6     | 6     | 6     | \$75             | \$75     | \$90     | \$90     | \$90     | \$16              | \$16    | \$20    | \$20    | \$20    | \$91                | \$91     | \$110    | \$110    | \$110    | 1,221             | 1,221   | 1,465   | 1,465   | 1,465   |
|                               | Metal Halide Lamp   | \$0                 | Per Fixture     | 3                      | 3     | 3     | 3     | 3     | \$18             | \$18     | \$18     | \$18     | \$18     | \$4               | \$4     | \$4     | \$4     | \$4     | \$22                | \$22     | \$22     | \$22     | \$22     | 337               | 337     | 337     | 337     | 337     |
|                               | LED Exit Sign   | \$0                 | Per Unit        | 42                     | 49    | 56    | 64    | 74    | \$210            | \$245    | \$280    | \$320    | \$370    | \$46              | \$54    | \$61    | \$70    | \$81    | \$256               | \$299    | \$341    | \$390    | \$451    | 7,969             | 9,297   | 10,626  | 12,143  | 14,041  |
|                               | BE Bright: Commercial                                     | \$0                 | Per Lamp        | 1,826                  | 1,830 | 1,834 | 1,839 | 1,843 | \$3,651          | \$3,659  | \$3,667  | \$3,677  | \$3,685  | \$801             | \$803   | \$805   | \$807   | \$809   | \$4,452             | \$4,462  | \$4,472  | \$4,484  | \$4,494  | 170,455           | 170,828 | 171,202 | 171,668 | 172,042 |
| Outdoor Lighting              | Custom Lighting Application                               | \$0                 | Per Account     | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | LED or Induction Fixture                                  | \$0                 | Per Fixture     | 13                     | 15    | 17    | 19    | 22    | \$296            | \$342    | \$388    | \$433    | \$502    | \$65              | \$75    | \$85    | \$95    | \$110   | \$361               | \$417    | \$473    | \$528    | \$612    | 4,806             | 5,545   | 6,284   | 7,024   | 8,133   |
|                               | High Pressure Sodium Fixture                              | \$0                 | Per Fixture     | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR CFL Fixture                                   | \$0                 | Per Fixture     | 4                      | 4     | 4     | 4     | 4     | \$60             | \$60     | \$60     | \$60     | \$60     | \$13              | \$13    | \$13    | \$13    | \$13    | \$73                | \$73     | \$73     | \$73     | \$73     | 539               | 539     | 539     | 539     | 539     |
| Heat Pumps                    | Geothermal Closed Loop System                             | \$0                 | Per Ton         | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | Geothermal Open Loop System                               | \$0                 | Per Ton         | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | Water Source System                                       | \$0                 | Per Ton         | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR Air-Source Heat Pump                          | \$0                 | Per Ton         | 1                      | 1     | 1     | 1     | 1     | \$200            | \$200    | \$200    | \$200    | \$200    | \$44              | \$44    | \$44    | \$44    | \$44    | \$244               | \$244    | \$244    | \$244    | \$244    | 69                | 69      | 69      | 69      | 69      |
|                               | Contractor Incentive: Geothermal and Air-Source Heat Pump | \$0                 | Per Ton         | 1                      | 1     | 1     | 1     | 1     | \$40             | \$40     | \$40     | \$40     | \$40     | \$9               | \$9     | \$9     | \$9     | \$9     | \$49                | \$49     | \$49     | \$49     | \$49     | 0                 | 0       | 0       | 0       | 0       |
| Heat Recovery Ventilators     | Heat Recovery Ventilation System                          | \$0                 | Per Ton         | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
| Commercial Kitchen            | ENERGY STAR Commercial Glass Door Refrigerator            | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR Commercial Glass Door Freezer                 | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR Commercial Solid Door Refrigerator            | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR Commercial Solid Door Freezer                 | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR High Temperature Dishwasher                   | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | ENERGY STAR Low Temperature Dishwasher                    | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
|                               | Commercial Steam Cooker                                   | \$0                 | Per Unit        | 0                      | 0     | 0     | 0     | 0     | \$0              | \$0      | \$0      | \$0      | \$0      | \$0               | \$0     | \$0     | \$0     | \$0     | \$0                 | \$0      | \$0      | \$0      | \$0      | 0                 | 0       | 0       | 0       | 0       |
| Custom                        | Custom Project  | \$0                 | Per Project     | 1                      | 1     | 1     | 1     | 1     | \$10,111         | \$10,111 | \$10,111 | \$10,111 | \$10,111 | \$2,219           | \$2,219 | \$2,219 | \$2,219 | \$2,219 | \$12,331            | \$12,331 | \$12,331 | \$12,331 | \$12,331 | 128,831           | 128,831 | 128,831 | 128,831 | 128,831 |

|               | Total Incentives |                  |                  |                  |                  | Total Utility Admin Costs |                 |                 |                 |                 | Total Program Costs |                  |                  |                  |                  | Projected Savings |                  |                  |                  |                  |
|---------------|------------------|------------------|------------------|------------------|------------------|---------------------------|-----------------|-----------------|-----------------|-----------------|---------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|
|               | 2015             | 2016             | 2017             | 2018             | 2019             | 2015                      | 2016            | 2017            | 2018            | 2019            | 2015                | 2016             | 2017             | 2018             | 2019             | 2015              | 2016             | 2017             | 2018             | 2019             |
| Residential   | \$338,115        | \$338,009        | \$339,661        | \$342,292        | \$347,322        | \$74,207                  | \$74,184        | \$74,546        | \$75,124        | \$76,228        | \$412,322           | \$412,192        | \$414,207        | \$417,416        | \$423,549        | 2,394,147         | 2,402,403        | 2,424,771        | 2,440,630        | 2,476,097        |
| Agricultural  | \$54,744         | \$56,610         | \$58,312         | \$60,667         | \$63,112         | \$12,015                  | \$12,424        | \$12,798        | \$13,315        | \$13,851        | \$66,759            | \$69,035         | \$71,110         | \$73,982         | \$76,963         | 746,669           | 763,393          | 776,465          | 797,526          | 810,618          |
| C & I         | \$35,494         | \$35,802         | \$36,178         | \$37,037         | \$37,472         | \$7,790                   | \$7,857         | \$7,940         | \$8,129         | \$8,224         | \$43,284            | \$43,659         | \$44,117         | \$45,166         | \$45,696         | 527,165           | 530,769          | 534,825          | 540,060          | 544,779          |
| <b>TOTALS</b> | <b>\$428,353</b> | <b>\$430,421</b> | <b>\$434,151</b> | <b>\$439,996</b> | <b>\$447,906</b> | <b>\$94,012</b>           | <b>\$94,466</b> | <b>\$95,284</b> | <b>\$96,567</b> | <b>\$98,303</b> | <b>\$522,365</b>    | <b>\$524,886</b> | <b>\$529,435</b> | <b>\$536,563</b> | <b>\$546,209</b> | <b>3,667,981</b>  | <b>3,696,565</b> | <b>3,736,061</b> | <b>3,778,217</b> | <b>3,831,493</b> |